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MINING DEVELOPMENT POLICY

By Herman STIGZELIUS,
Director of Bureau of Mines,
Ministry of Commerce and Industry,
Finland

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Mining Development Policy

by

Herman Stigzelius,

Director of Bureau of Mines,
Ministry of Commerce and Industry, Finland

1. The formulation of a national mining policy.

(a) General

Multiform industrial activity requires access to raw materials, trained labour power, communication facilities, water and power, as well as sufficient sales possibilities for the products of industry. In an under-developed country, the possibilities for rapid industrial expansion are often meagre and, in order to lead the development in the right direction, it is necessary to make careful investigations of existing resources and to utilize them so that new qualifications toward gradual advancement of livelihood are acquired.

Among the first steps in the development of industry are investigation, exploitation and export of ore, minerals and other raw materials existing in the country. In case these can be sold on the world market at prices allowing a profitable return, there is even economic justification for further development of the raw material industry in question, as well as communication facilities, power procurement, institutes of learning etc. By these means further pre-conditions are acquired for a wider and multiform progress of the country's livelihood.

Exploitation of the country's mineral resources does not have to signify draining the country of its mineral reserves. Actually a profitable and well designed management of mining tends to increase the known accesses. Expansive mining requires intense prospecting and continuous inventories of known resources, whereby new reserves often

compensating many times over the used quantities of ore may be encountered. On the contrary we can consider that a known ore which has not become an object of mining is being preserved as a national reserve. As the ore is not worked, no further investigations of it nor of eventual corresponding findings are carried out the known ore reserve cannot increase.

At the beginning of its industrial evolution, a country often finds that its ore and other raw materials are exported in a more or less unrefined state. The next step on the road of progress is the building of a refining industry for these raw materials. This procedure can and ought to be executed as soon as the accesses to raw material have been secured and it is technically and economically possible to carry out plans for further refining. This often necessitates that the country has good technical knowledge and communication facilities and that it is respected as a commercial partner on the international market.

(b) Mining legislation

The construction of modern mining involves huge investments which even in the most positive cases create profit only after several years of constant exertion, and the risk of unpredictable losses is always of significance in mining.

In order that the capital which is needed for the development of a country's mining industry may find its way into the state, it is important that legislated order prevails in the country as well as political and economic stability and also that legislation favours enterprise in regard to taxes, freight, customs, duties, fees and other burdens. Low taxes and respective payment obligations are undoubtedly active promoters of every kind of industrial activity.

Particular emphasis should be attributed to the forming of mining legislation, which essentially can promote, but also smother interest for prospecting activity and building of the mining industry in general. As a rule it can be said that concession procedure is best adaptable to searching for and exploitation of extensive layer-formed findings such as oil, coal etc., while free claim right has a strongly stimulating effect on prospecting activity within areas which hold intrusive and eruptive rock formations, where ore bodies of more limited quantities can be expected to exist. A state's monopoly for utilizing mineral resources usually is justified only when the state itself is capable of pursuing intense prospecting activity and even of making the investments the building of mining industry requires.

which is seldom the case in under-developed countries.

(c) Relations to foreign enterprises.

It is desirable that under-developed countries welcome foreign capital and expert knowledge into the country. It is appropriate to codify the mining legislation with stipulations that foreigners may be granted a right to practice prospecting and mining only on conditions imposed upon them by the state, each case to be dealt with separately. These conditions must not be so strict as to frighten off sound enterprising spirit, although they should comply with the essential national interests.

(d) Cooperation among under-developed countries.

Many under-developed countries, especially among the relatively new ones, spurred by momentous national feeling, often endeavour to build a multiform refining industry very rapidly very often on the basis of insufficient resources. For example, an iron ore strike is not adequate grounds for building an iron and steel plant. A lack of coking coal resources is not economically compensated by the possibility of making charcoal from the wood material in the jungle. The lack of power procurement, communication facilities and professional skill can not be eliminated in one jump. Also the sales possibilities at competitive prices of the products of the proposed plant should be sufficiently planned before realizing all too grand-scale industrialization plans.

Possibilities of rapid industrialization are greatly increased through economic and technical collaboration among countries within the same geographical area. Let us for example assume that A has iron ore and B has coking coal resources. By way of mutual exertion, it might be possible to establish a steel works with the ability to compete and to answer the mutual consumption of certain steel products of these countries, while the same plan, executed within the narrow national boundaries, would prove a fiasco and become a burden to the livelihood of both countries.

2. Organization of national mining services.

(a) Bureau of mines

For the scheming of a suitable mining policy, for the preparation of matters concerning it, for the management of the administration of mining and for seeing that regulations are observed, every country should have special personnel, sufficiently competent and with sufficient authority. Matters concerned hereby could well be

adjoined in a mining bureau, which, for example, can be incoporated administratively in the ministry in charge of industrial matters.

(b) Geological survey.

The knowledge of the geological structure and the mineral resources of a country is the basis on which the mining activity can be built. The better knowledge is the better are the pre-conditions for appropriate planning of the natural lines development of mining. Thus, one of the first assignments to be carried out is the overall geological mapping of the country. As it is for public welfare, it is appropriate that such a mapping be carried out by the state and for this end, it is advisable to establish a state-administered geological survey.

As regards the geological mapping, it is appropriate to utilize in large measure the possibilities offered by flight photography and aero-geophysical mapping to obtain a survey of the general structure and extent of different geological formations. With a minimum of time and expensive field work, such a flight mapping can give an initial picture of the geological structure of the country, which can and should, later, be completed by continuous explorations in ever smaller detail by means of field work.

The geological survey should, in collaboration with the mining bureau and the mining industry, cooperate in the mapping, investigation and estimation of the country's raw material resources. To this end, the survey should, within economic possibilities, be provided with geophysical ore searching apparatus, diamond drills, mineralogical and chemical laboratories among other things, and of course, with sufficient trained personnel.

(c) Training of mining engingeers, geologists and supporting technicians.

In most under-developed countries the lack of trained personnel presents a serious hindrance to the rapid development of mining. This holds true for mining engineers as well as geologists and technical, social and administrative personnel for the diversified duties involved in a developed industrial activity.

Competent schooling of mining engineers and geologists should be considered a matter of major importance in countries where possibilities exist for building a mining industry. They should endeavour to set up a mining technical faculty within a technical university, with possibilities for specializing in geology, prospecting, mining, ore dressing and metallurgy. However, this cannot

often be carried out rapidly in under-developed countries. The lack of competent instructors may partially be compensated by hiring foreign experts and partially by training talented students at foreign technical colleges and research institutes, so as to be competent to take charge of instruction in their professional subjects as soon as possible. An intimate, plamned cooperation with some well-organized university in a more developed country would be of great assistance. In order that the young men who have received good foreign training should devote themselves to university teaching, it is of course necessary that they be paid satisfactorily. Underpayment of university teachers and higher governmental employees in general is unfortunately characteristic of many under-developed countries.

A hindrance to effective higher technical and scientific training, apart from the lack of teachers, is also the paucity of pupils with satisfactory basic school education. This lack cannot, however, be atoned for until the whole school system has been brought up to the level of modern requirements in general literacy among the great mass of the people and possibilities for further education of talented youth exist. The elevation of the general education level in an underdeveloped country is a gigantic project which requires time as well as money, but it is a goal that is worth the exertion, and, in the long run, the only chance of elevating the country from its state of under-development.

A third hindrance to the effective training of competent mining engineers and geologists is the lack of economic resources for building instruction precints and laboratories, for procuring laboratory equipment and other instruction material as well as payments and scholarships. In countries where there is an unavoidable demand for arranging this instruction and where the other qualifications exist for the development of university instruction, these economic factors, however, must not be allowed to reverse the decision. The means should be secured by the state or begged from organizations and countries having an interest in the development of the country.

Besides mining engineers and geologists, an expansive mining industry also requires professional workers with lower technical training. The arranging of a systematic schooling for such supporting technicians in special technical schools can be effected after the higher instruction has been developed, teachers are available and mining has reached a certain stage of development. Until then it is

necessary to make foremen and lower technical personnel of labourers who, by way of experience and application, have earned a position of more responsibility.

Attempts should be made to arrange for systematic professional schooling of professional workers within mining.

(d) Technical research.

For studying and developing possibilities, for the most economic utilization of the country's mineral resources, for the refining of the same and for the preparation of possibilities of technical research for advanced students and researchers, it would be necessary to study the possibilities of establishing a metallurgical laboratory, in which ore dressing and other metallurgical work could be carried out. Executed by the state, the easiest means in most under-developed countries, such a laboratory could administratively be subordinated to the governmental bureau of mines and should be in close collaboration with the geological survey as well as with the eventual mining faculty at the university. Alternatively the laboratory could be contained in one of these organs or eventually form a department within a technical research institute with multiform activity. In any case it must be stated that the organization of "national mining services" cannot be completed before the state and other interested parties have available a well equipped metallurgical research laboratory under competent management.

3. State-owned mining enterprises

In many under-developed countries as well as more advanced ones, there is often a powerful national interest to develop mining under administration of the state. How to adapt the activity to governmental administration is a problem of great momentum. In countries with free enterprising it can generally be recommended that governmental enterprise should be in the form of a stock company, in which the state and other administrative organs hold the majority of the stock, and are fully equalized in their activity by other mining enterprises. Thus the management of the enterprise is forced to strive for the best possible economic result. They are not allowed to pursue any kind of unprofitable activity with regard to public interest, unless the state provides funds for them. Through the stock holders' meeting, in which the state prevails, the company management is responsible for the activity of

the enterprise and, in all respects, the activities of the corporation are bound by stock company stipulations and good business conduct. If such an administratively organized enterprise continously works at a loss, its activity should be discontinued or reorganized.

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